invention. For example, the functions performed by the components of the communication device 110 or the network peer 120 may be fully or partially implemented via a combination of logica gates formed in silicon. Thus, the present invention is not limited to any specific combination of hardware circuitry and software.

The scope of the invention is defined by the following claims and their equivalents.

WHAT IS CLAIMED IS:

1. A method for transmitting data in the form of packets, each packet including a header and a data field including at least one pseudo-header, the method comprising:

formatting the packet header in accordance with the specifications of the one protocol;

formatting a pseudo-header within the data field of the packet in accordance with one or more additional constraints;

transmitting a data packet including a segment of data, a header and a pseudo-header to a receiving device;

receiving at least one reply packet from the receiving device, formatted

in accordance with the one protocol;

determining the validity of the received packet based on at least one additonal processing step after reception of the packet in accordance with the one protocol.

2. A method of claim 1, wherein the data packet transmitted is formatted in accordance with the specifications of User Datagram Protocol UDP.

3. A method of claim 1, wherein the data packet transmitted has a pseudo-header within the ~~data field~~. Don't not Omit

4. A method of claim 3, wherein the fields of the pseudo-header are generated according to additional constraints.

5. A method of claim 1, wherein the transmitting includes:

transmitting the data packet using Transmission Control Protocol (TCP).

6. A method of claim 1, wherein the transmitting includes:

transmitting the data packet using User Datagram Protocol (UDP).

7. A method of claim 4, where the generating includes:

generating the at least one field of the pseudo-header in accordance with additional constraints.

8. A system for transmitting data in a network, the data including at least one segment transmitted in at least one packet, the system comprising:

a memory configured to store instructions; and

a processor configured to execute instructions to :

generate at least one field of at least one pseudo-header after the protocol header and before the protocol data field; and

implement constraints on the formatting of the at least one field of the psedo-header.

9. A system of claim 8, wherein at least one reply to the transmitted packet is received and processed.

10. A system of claim 9, wherein the processor performs at least one additional checking step on the pseudo-header contained within the packet data fields upon reception of the reply to the transmitted packet.

11. A computer-readable medium having stored thereon a plurality of sequences of instructions, said sequences of instructions including instrucitons which, when executed by at least one processor, cause said processor to perform the steps of:

generating at least one field of a pseudo-header after the protocol header

and before the protocol data field; and

implementing constraints on the formatting of the at least one field of the pseudo-header.

12. A computer-readable medium of claim 11, wherein at least one reply to the transmitted packet is received and processed.

13. A computer-readable medium of claim 12, wherein the reply receieved in response to a transmitted packet is verified by performing at least one computation using the pseudo-header field contained within the protocol data field.

14. A computer-readable medium of claim 11, wherein the transmitting includes:

transmitting packets in accordance with the Transmission Control Protocol (TCP).

15. A computer-readable medium of claim 11, wherein the transmitting includes:

transmitting packets in accordance with the User Datagram Protocol (UDP).

16. a computer-readable medium of claim 12, wherein the reply is received in accordance with the Transmission Control Protocol (TCP).

17. a computer-readable medium of claim 12, wherein the reply is received in accordance with the User Datagram Protocol (UDP).

18. A method of analyzing the header of one protocol in the context of the header of at least one other protocol, the method comprising:

identifying the prefix portion of the header of the one protocol that is common with the corresponding prefix portion of the at least one other protocol; and

identifying a next portion of the header of the one protocol that differs from the corresponding next portion of the header of the at least one other protocol; and

computing at least one constraint that is to be applied to the processes which can generate packets in accordance with the at least one other protocol.

19. A method of claim 18, wherein the computing of the at least one constraint is done so that the packet generated in accordance with the at least one other protocol with the further addition of the at least one

constraint will satisfy the requirements of the one protocol.

20. A method of claim 19, wherein the the computing of the at least one constraint is done so that the packet generated in accordance with the at least one other protocol with the further addition of the at least one constraint will substantially satisfy the requirements of the one protocol.

21. A method of transmitting data as data packets, the method comprising:

receiving packets formatted in accordance with one protocol; and

applying them to the processing procedures designed in accordance with an other one protocol; and

generating replies to be transmitted in response to the received packets; and

transmitting the replies into the network.

22. A method of claim 21, wherein the one protocol is Transmission Control Protocol (TCP).

23. A method of claim 22, wherein the one other protocol is User Datagram Protocol (UDP).

24. A method of claim 21, wherein the one protocol is User Datagram Protocol (UDP).

25. A method of claim 24, wherein the other one protocol is Transmission Control Protocol (TCP).

26. A device of claim 20, further comprising:

logic configured to receive packets in accordance with at least one protocol; and

logic configured to generate a reply and to transmit the reply into the network in accordance with at least one protocol.

logic configured to insert at least one pseudo-header field in the transmitted packet in accordance with at least one additional constraint.